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# PATENT SPECIFICATION

(11) 1 340 792

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## DRAWINGS ATTACHED

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- (72) Inventor ROBERT PAUL CRAINE



## (54) IMPROVED PACKAGING DEVICE

(21) We, BOWATER PACKAGING LIMITED, a British company of Bowater House, Knightsbridge, London, England, do hereby declare this invention for which we pray that a patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an improved packaging device or holder for holding together a plurality of tins or cans provided at least at one end with a closure seam projecting radially outwards and forming a peripheral, downwardly facing shoulder, but it will be appreciated that the device could be adapted for holding in assembled relation other similar articles as will later be described

Packaging devices according to the present invention are preferable formed of semi-rigid fibrous sheet material such as a semi-stiff card or cardboard but it is envisaged that the devices could be made from equivalent material such as plastics material.

Packaging devices similar to those of the present invention are already known, but they suffer from the disadvantage that they can easily slip off the articles to be held together with the result that the articles may be dropped and damaged.

The devices of the present invention have been designed so that it is extremely difficult for them to fall off the articles being packaged

The device of the present invention, although particularly designed for holding together in a line a plurality of tins of circular cross section, e.g., beer cans, could equally be used for holding together in a line a plurality of similar articles provided with an outwardly directed downwardly facing shoulder adjacent at least the top of the article, provided those similar articles, when stacked together in line, do not abut each other over their total transverse dimension relative to said line, in the locality of the shoulder. In other words, the packaging

device would not be suitable for holding together a plurality of articles of rectangular cross section arranged in a line but it would be suitable for holding together a plurality of octagonal articles or even generally rectangular articles having rounded corners. It will also be appreciated that the improved packaging device of the present invention would be suitable for holding together in a line a plurality of articles having various general shapes provided that they have a shoulder, as explained above which is provided at at least one end of the article, by a beaded or flanged rim around the end, (which is preferably circular). Throughout the remainder of this specification such articles will be referred to as articles of the type described.

Throughout the specification, use is made of the expressions "top", "upper", "downwardly", etc. These should be interpreted, when applied to an article, as though the article is orientated in conventional manner, standing for example, on a horizontal surface.

According to the present invention, we provide a packaging device for holding together in close proximity at least two articles having at least one flanged end, comprising a sheet of semi-rigid material divided into a central panel, a pair of spaced outer edge panels and a plurality of intermediate panels defined by two spaced pairs of spaced, parallel interrupted fold lines, and wherein, for each article to be held together, the edge panel is provided with a tongue, which tongues, in use, engage beneath the flange at the end of the respective article, with part of the central panel overlying the end of the article and the edge panels extending substantially normal to the central panel with parts thereof engaging the side wall of the articles in the vicinity of said end.

Each tongue may extend inwardly from its edge panel towards said central panel, beyond the interrupted fold line defining the edge panel.

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Also according to the present invention, we provide a packaging device for a plurality of articles having a beaded or flanged rim at at least one of its ends, comprising a sheet of semi-stiff material cut and creased to define a central panel for overlying two or more articles arranged in a row, a pair of edge panels and a plurality of intermediate panels extending between the central and edge panels, said intermediate panels being foldably connected to the central panel and adjacent edge panel by fold lines forming portions of inner and outer parallel interrupted fold lines, a tongue between each portion of the outer interrupted fold line, said tongues extending inwardly from the respective edge panels towards said central panel, beyond the interrupted, fold lines defining the respective edge panels, wherein said intermediate panels at each side of the sheet are directly opposite each other and are defined by the inner and outer fold line portions and cuts through the sheet extending between the adjacent ends of associated portions, said edge panels, in use, being arranged to extend substantially at right angles to the central panels and to lie against side portions of the articles in the row adjacent said rims and said intermediate panels being located, on either side of the articles, between each adjacent article and within the confines of said articles and inclined to the central and edge panels, with the tongues located beneath said rims.

When the packaging device is for use as a holder for a plurality of cans of beer or the like the portions of the outer fold lines are preferably longer than those of the inner fold lines.

Also, according to the present invention, we provide an improved packaging device for holding together in a line a plurality of articles of the type described, said articles being substantially identical, comprising a sheet of semi-rigid material provided with two pairs of parallel spaced, interrupted fold lines one of the fold lines of each pair comprising an outer fold line and the other of each pair comprising an inner fold line, the spacing between the outer fold lines being greater than the overall transverse dimension of the flange of the articles to be held together and the spacing between the inner fold lines being less than said transverse dimension, the interruptions in the outer fold lines being formed by inwardly directed tongues which tongues are arranged in pairs directly transversely opposite each other, the distance between the tips of the tongues of each pair being greater than the distance between the inner fold lines, said tongues being connected to said sheet only at their root, whereby, upon

folding about said pairs of fold lines occurring, said tongues may be moved out of the general plane of said sheet, wherein the portions of said outer fold lines between said tongues are longer than the individual portions of the inner fold lines and wherein cuts passing completely through the sheet extend between the ends of the respective portions of each inner fold line and the ends of the associated portions of each inner fold line, extensions of said cuts defining the tips of said tongues whereby, when the sheet is placed over the articles to be held together, with the portion of the sheet between the inner fold lines overlying the upper surface of the articles, outer edge zones of the sheet can be folded down the sides of the articles by folding occurring along the pairs of parallel spaced fold lines, so that, when said outer zones extend at an angle of approximately 90° from the portion of the sheet overlying the articles, said tongues locate beneath the shoulders on said flanges and are biased upwardly and inwardly as a result of tension forces in the portions of the sheets between the fold line portions.

Preferably, said cuts extend into said central panel and then turn upon themselves through about 180°. This minimises tearing at this point.

Although it is not essential, it is preferred that said tongues extend from said edge panels towards said central panel, beyond the interrupted fold lines defining the respective edge panels. In this way, the packaging device forms an extremely snug fit on the articles in the subsequent pack and is quite difficult to remove. This snug fit is partly because the intermediate or inclined panels act in tension, pulling the tips of the tongues up beneath the rims, flanges or shoulders of the articles. However, when the tongues extend inwardly beyond said fold lines defining the respective edge panels, they have a 'lever' effect, causing even tighter gripping of the packaging device on the articles.

A preferred embodiment of the invention is now described with reference to the accompanying drawings, in which:—

Figure 1 is a plan view of the packaging device, prior to use.

Figure 2 is a perspective view showing the device of Figure 1 in use to hold together three cans of beer, and

Figure 3 is a part section on the line 3—3 of Figure 2.

Referring now to the drawings, the packaging device will normally be in the form of a rectangular sheet of semi-rigid card as shown in Figure 1, but of course the size of the sheet will depend upon the articles to be held together. The sheet shown in Figure 1 is for holding together

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three cans of beer and accordingly, the length of the sheet is slightly in excess of three times the diameter of the cans and the width of the sheet is somewhat greater than the diameter of the cans. In the drawing, fold lines are represented by broken lines and cuts completely through the sheet are represented by full lines.

Referring now to Figure 1, the rectangular sheet 1 is for forming into a pack three beer cans and is formed with two pairs of outer and inner, spaced, interrupted, fold lines 3, 5, 7, and 9 respectively. The outer fold lines 3 and 7 are divided into fold line portions 11, 13, 15 and 17 and it will be noticed that corresponding portions are directly transversely opposite each other on the sheet. Likewise, the inner interrupted fold lines 5 and 9 have fold line portions 19, 21, 23, 25, the respective portions again being directly transversely opposed and also aligned respectively with the fold line portions 11, 13, 15 and 17.

Each of the fold line portions 11, 13, 15 and 17 is joined to its adjacent portion by an inwardly directed tongue 27, so that, if, as shown, three articles i.e., beer cans are to be held together in a line, there will be two tongues for each beer can, one being diametrically opposite the other.

The spacing between the inner pair of interrupted fold lines 5 and 9 is somewhat less than the transverse dimension of the cans to be held together, i.e., less than the diameter of the cans, whereas the spacing between the outer interrupted fold lines 3 and 7 is greater than said transverse dimension. Cuts 29 passing right through the sheet extend between the ends of the inner fold line portions 19, 21, 23 and 25 and the adjacent ends of the corresponding outer fold line portions 11, 13, 15 and 17 and because the articles to be held together are circular in cross section, a major part of said cuts 29 substantially follows the circular shape of the cans. Furthermore, each pair of adjacent cuts 29 is joined together by a further cut 31 which defines the tip of each tongue 27. The precise shape of the tongues 27 is unimportant, but the cut 31 should be such that the tongue can engage snugly beneath a shoulder on a flange of a beer can, as will be explained. To prevent tearing occurring in use, the cuts 29 have return portions 40, as shown in Figure 1, but these are not essential.

It will be noted that the sheet has a central zone 35, two edge zones 37 arranged outwardly of the outward fold lines 3 and 7, and a plurality of intermediate zones 39 which are defined by the various portions 11, 13, 15, 17 of the outer fold lines 3 and 7 and the various portions 19, 21, 23 and 25 of the inner interrupted fold lines 5 and 9, and the cuts 29.

To hold the three beer cans shown in Figure 2 together in a straight line, so as to form a three-can-pack, the sheet of Figure 1 is placed over the upper ends of the cans with its longitudinal central axis parallel to the line of the cans and the edge zones 37 are then pushed downwardly, thereby causing bending to occur about the interrupted fold lines 3, 5, 7 and 9. When the edge zones 37 lie against the side walls of the cans, the intermediate zones 39 extend at an angle of approximately 45° both to the central zone 35 and to the edge zones 37 and in this position, the tongues 27, which lie in the same respective planes as the edge zones 37, will be spaced below the plane of the central zone 37, so that the tips of the tongues can engage beneath the horizontal downwardly facing shoulder 45 formed by the traditional closure rim 43 (see Figure 3) on each of the beer cans 41. When in this position, there will be a tension force in each of the intermediate zones 39 helping to hold the tips of the tongues 27 beneath the shoulders 45 and against the side walls of the cans.

It has been found that a three-can pack held together by an improved packaging device as disclosed herein can easily be picked up and transported without a fear of an of the cans falling loose.

Though it is preferred that the sheet of material 1 has a central zone 35 which completely covers the top surface of the cans, it is envisaged that portions may be removed without affecting the function of the packaging device.

Apart from forming a packaging device for holding the cans together, the sheet may be printed with descriptive and decorative material for advertising and display purposes.

The above described packaging device has been designed specifically for a three-can beer pack. Obviously, it could be modified for any number of cans in the pack merely by increasing its length and forming it with the desired fold lines and cuts and if it is required to form packs of tins or cans of different sizes, then only the dimensions of the various markings, score lines and cuts on the sheet need be altered.

It is also envisaged that improved packaging devices in accordance with this invention can be used for holding together other types of articles such as jars with flanged lids, rectangular tins, provided the tins have rounded corners, plastic pots of cream etc., and similar articles. It is however essential that the articles have adjacent their upper surface an outwardly directed flange presenting a downwardly facing shoulder and that at least that portion of the article in the region of the flange is so shaped that the inner fold lines 5 and 9 of

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the packaging device will allow folding of the intermediate zones 39 of the device downwardly with respect to the central zone 35 so as to occupy a position which is in effect between the walls of adjacent articles to be packed and which will allow the edge zones 37 to be folded downwardly so as to lie snugly against the walls of the articles to be packed with the tongues 27 snugly engaged beneath the downwardly facing shoulder.

#### WHAT WE CLAIM IS:—

1. A packaging device for holding together in close proximity at least two articles having at least one flanged end, comprising a sheet of semi-rigid material divided into a central panel, a pair of spaced outer edge panels and a plurality of intermediate panels defined by two spaced pairs of spaced, parallel interrupted fold lines, and wherein, for each article to be held together, the edge panel is provided with a tongue, which tongues, in use, engage beneath the flange at the end of the respective article, with part of the central panel overlying the end of the article and the edge panels extending substantially normal to the central panel with parts thereof engaging the side wall of the articles in the vicinity of said end.
2. A packaging device according to claim 1 wherein each tongue extends inwardly from its edge panel towards said central panel, beyond the interrupted fold line defining the edge panel.
3. A packaging device for a plurality of articles having a beaded or flanged rim at at least one of its ends, comprising a sheet of semi-stiff material cut and creased to define a central panel for overlying two or more articles arranged in a row, a pair of edge panels and a plurality of intermediate panels extending between the central and edge panels said intermediate panels being foldably connected to the central panel and adjacent edge panel by fold lines forming portions of inner and outer parallel interrupted fold lines a tongue between each portion of the outer interrupted fold line said tongue extending inwardly from the respective edge panels towards said central panel, beyond the interrupted fold lines defining the respective edge panels, wherein said intermediate panels at each side of the sheet are directly opposite each other and are defined by the inner and outer fold line portions and cuts through the sheet extending between the adjacent ends of associated portions, said edge panels, in use, being arranged to extend substantially at right angles to the central panel and to lie against side portions of the articles in the row adjacent said rims and said intermediate panels being located, on either side of the articles, between each adjacent article and within the confines of said articles

and inclined to the central and edge panels, with the tongues located beneath said rim.

4. A packaging device according to claim 3 for acting as a holder for a plurality of beer cans or the like, wherein the portions of the outer fold lines are longer than those of the inner fold lines.

5. An improved packaging device for holding together in a line a plurality of articles of the type described, said articles being substantially identical, comprising a sheet of semi-rigid material provided with two pairs of parallel, spaced, interrupted fold lines, one of the fold lines of each pair comprising an outer fold line and the other of each pair comprising an inner fold line, the spacing between the outer fold lines being greater than the overall transverse dimension of the flange of the articles to be held together and the spacing between the inner fold lines being less than said transverse dimension, the interruptions in the outer fold lines being formed by inwardly directed tongues which tongues are arranged in pairs directly transversely opposite each other, the distance between the tips of the tongues of each pair being greater than the distance between the inner fold lines, said tongues being connected to said sheet only at their root, whereby, upon folding about said pairs of fold lines occurring, said tongues may be moved out of the general plane of said sheet, wherein the portions of said outer fold lines between said tongues are longer than the individual portions of the inner fold lines and wherein cuts passing completely through the sheet extend between the ends of the respective portions of each inner fold line and the ends of the associated portions of each outer fold line, extensions of said cuts defining the tips of said tongues whereby, when the sheet is placed over the articles to be held together, with the portion of the sheet between the inner fold lines overlying the upper surface of the articles, outer edge zones of the sheet can be folded down the sides of the articles by folding occurring along the pairs of parallel spaced fold lines, so that, when said outer zones extend at an angle of approximately 90° from the portion of the sheet overlying the articles, said tongues locate beneath the shoulders on said flanges and are biased upwardly and inwardly as a result of tension forces in the portions of the sheets between the fold line portions.

6. A packaging device according to claim 3, 4 or 5 wherein said cuts extend into said central panel and then turn upon themselves through about 180°.

7. A packaging device according to claim 5 wherein said tongues extending from said edge panels towards said central panel, beyond the interrupted fold lines defining the respective edge panels.

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8. A packaging device substantially as hereinbefore described with reference to the accompanying drawings.

5 9. A pack of articles held together by a packaging device as claimed in any one of the preceding claims.

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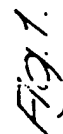


Fig 1.

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COMPLETE SPECIFICATION

2 SHEETS

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